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ABSTRACT

This paper describes college classes according to their prevailing goals and incentive structures to determine the extent that they can be characterized as emphasizing mastery and performance goals and individualistic, cooperative, and competitive incentives. A second focus is on the relationship between these goals and incentives. Participants were 1,037 college students from 54 small- to medium-sized lecture or lecture/discussion classes at a large midwestern, public university. Students responded anonymously to a questionnaire described to them as a way to learn more about their learning environment. Fifty-four instructors, experienced from 1 to 30 years, assisted in the task. With the exception of a moderately high emphasis on grades, students perceived their classes' goals and incentives as having characteristics that have been found to facilitate engagement in learning: an emphasis on learning the material, outcomes based on individual performance criteria, opportunities for learning in groups, and less emphasis on competition and ability comparisons. Variability among classes was related to the level of student engagement in learning; working together, cooperating students who placed less emphasis on grades used more higher-order learning strategies of elaboration and critical thinking. Findings support the hypothesis that a learning atmosphere that encourages cooperation with less emphasis on grades creates a higher level of student engagement in learning. (Contains 33 references.) (NAV)

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Relation of Perceived Instructional Goals and Incentives to College Students' Use of Learning Strategies

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Students enter classes with prior subject-matter knowledge, skills related to new knowledge acquisition, and with motivational tendencies that predispose them to different degrees of engagement in the learning process. These person factors interact with the features of specific classes to determine what and how much will be learned. Considerable conceptual and empirical work has focused on two features that impact learning: learning goals and incentive structures. The present study examined several issues related to goals and incentives in college classes, specifically: (a) the relative emphasis placed on types of goals and incentives, (b) the extent of agreement among students on the emphasis placed on specific goals and incentives in their classes, (c) relationships between goals and incentives, and most important, (d) the association between goals and incentives and students' use of learning strategies known to facilitate student performance.

Achievement goals (or goal-orientations) refer to the motivational basis of learning, the purpose for which learning is undertaken. The major distinction that has been made contrasts mastery (also termed task and learning) with performance (also called ego and ability) goals (Ames, 1992; Ames & Archer, 1988; Dweck, 1986; Maehr & Nicholls, 1980; Nicholls, 1992). Mastery goals focus on the learning process with an emphasis on individual improvement, gaining new skills, and challenge. Performance goals are defined as a concern with outcomes such as grades, rather than process, and with one's ability (especially in comparison to others). There is considerable evidence that motivation and learning are facilitated in settings that promote mastery rather than performance goals (e.g., Ames, 1992; Blumenfeld, 1992; Meece, Blumenfeld & Hoyle, 1988; Nicholls, 1992).

The features of classes that induce either mastery or performance goal-orientations are the types of academic tasks that students are assigned, classroom authority relationships, and the criteria used for evaluation and recognition (Ames, 1992). Instructional strategies that support mastery goals include tasks that are novel and challenging, a high degree of student choice and control, a focus on individual improvement and individual evaluation (Ames, 1992). and opportunities for students to work together on assignments (Maehr & Midgley, 1991). Classes with these characteristics are predicted to have students who are more engaged in the learning process and therefore more likely to learn.

Incentive structures are the criteria that determine how performance is evaluated (Slavin, 1983; Slavin, Sharan, Kagan, Hertz-Lazarowitz, Webb, & Schmuck, 1985). Under an individualistic structure, rewards for performance are independent of other students' outcomes, whereas with cooperative incentives they are determined by joint performance (e.g., group grading procedures). In competitive settings, one learner's gain is another's loss when, for example, restrictions are placed on the percentage of students receiving a given grade. There is considerable evidence that cooperative learning environments result in improved academic performance, and that competition can be detrimental (Goodsell, Maher, & Tinto, 1992; Slavin, et al., 1985), although the advantages of cooperation may be contingent on whether students are evaluated for their individual as well as group performance, and may even depend on whether reward is based on group gains rather than absolute performance (Slavin, 1983). As with class characteristics that engender mastery goals, we expect greater student engagement in learning in classes that are structured to reward both individual and cooperative but not competitive incentives.

Our first purpose was to describe college classes according to their prevailing goals and incentives structures, to determine the extent that college classes can be characterized as emphasizing mastery and performance goals, and individualistic, cooperative, and competitive incentives. The second focus is on the relationship between goals and incentives. Although goal-orientation and incentive structures are often considered independently in the literature, class reward structures play an important role in determining learning goals (Ames, 1992), suggesting certain associations. Specifically, instructional strategies that focus on individual improvement,

and that provide for cooperative experiences (Maehr & Midgley, 1991) should engender mastery goal orientations. Performance goals, however, would be expected in classes with competitive incentive structures and an emphasis on inter-student comparisons.

One consequence of student engagement in the learning process is increased self-regulation. More involved and regulating learners place higher value on understanding, are more self-efficacious, and make greater use of cognitive strategies, such as organization, elaboration, and critical thinking (e.g., Chipman, Segal, & Glaser, 1985; Schunk & Zimmerman, 1994; Weinstein & Mayer, 1986). They also self-regulate through metacognitive processes of strategic planning (e.g., goal-setting, problem analysis), monitoring progress toward task completion (e.g., comprehension), and their regulation of study environments, levels of effort, and sources of assistance (Corno, 1989; Karabenick & Sharma, 1994; Pintrich & Garcia, 1991; Zimmerman & Schunk, 1989), which lead to higher performance levels compared to learners who are less involved (Pintrich et al., 1986). Accordingly, increased learning strategy use is predicted in classes that emphasize mastery goals, individual and cooperative incentives, and cooperative activities, and decreased learning strategy use in classes that emphasize performance goals and competition.

Assessment becomes a critical issue when determining class goals and incentives. Whereas it would seem reasonable to determine goals and incentives by observing class activities and requirements or by interviewing teachers, such techniques may not be appropriate. As summarized by Ames (1992), teacher intentions may not translate directly into practice, such as teacher claims to be instituting learning goals but focusing on students' ability comparisons. In addition, because of variations in their experiences of classroom structures and how they derive personal meaning from those experiences, students may construe classes quite differently than structured (McCombs, 1989; Maehr, 1984; Marshall & Weinstein, 1986). For these reasons, asking students to describe their classes should be more valid, and this approach was used to determine the effective goals and incentives in the present study.

Because we are interested in classes rather than individuals, the unit of analysis consisted of class aggregated student perceptions. Using aggregate scores to provide class estimates raises the question of the extent to which students agree with one-another. Only if there is sufficient agreement can aggregate scores be considered reliable measures of class goals and incentives (analogous to the question of reliability of student ratings of teacher effectiveness). Some dimensions may also be more reliably assessed than others, which will be indicated by the relative level of within-class agreement.

Method

Participants and Procedure

Participants were 1037 college students (66% women and 34% men) from 54 small to medium size lecture or lecture/discussion classes (M = 25.5 students; SD = 11.3) at a large midwestern public university. Classes were selected in a stratified random manner to provide representation across disciplines (e.g., arts and humanities, behavioral and social sciences, natural sciences, and business) and class levels (primary sophomore to graduate). Students responded anonymously in their classes during the last four weeks of a regular academic term to a questionnaire described to them as designed to learn more about students' learning environment. The 54 instructors (60% men and 40% women) ranged in experience from 1 to 30 years (M = 15.7, SD = 9.2).

Assessment of Perceived Class Environment

Perceived class goal orientations and incentive structures were assessed by asking students "What kind of class is this?" They indicated "how much emphasis" there was using a 6-point scale (0 to 5) with anchors of *no*, *somewhat*, and *yes* to the lead-in, "This is a class where..." The

items were: "students compete with each other for grades" (competitive incentive), "grades are based on individual performance" (individualistic incentive), "grades are based on group performance" (cooperative incentive), "learning the material in the course is important" (mastery goal); "it is important to show that you are smarter than other students" (comparative performance goal); "grades are important" (extrinsic performance goal), and "students cooperate to learn the material" (group learning activity).

Assessment of Learning Strategy Use

Students' use of learning strategies was measured by items from the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia & McKeachie, 1991, 1993). Three two-item scales assessed students' use of higher order cognitive strategies that consisted of organization (e.g., "I make simple charts, diagrams, or tables to help me organize course material"), elaboration (e.g., "I try to relate ideas in this subject to those in other courses whenever possible and to the concepts from the lectures"), and critical thinking (e.g., "When I read or hear an assertion or conclusion in this class, I think about possible alternatives"). A three-item metacognition scale measured the use of planning, comprehension monitoring, and regulating (e.g., "When I become confused about something I'm reading for this class, I go back and try to figure it out"). Students responded using a 6-point Likert-scale format (anchors of *strongly disagree* and *strongly agree*).

Results

Inter-student Agreement on Class Goal-Orientations and Incentives

Spearman-Brown corrected intraclass correlation coefficients (ICC) were calculated to determine the degree of agreement among students within classes (Lahey, Downey, & Saal, 1983; Shrout & Fleiss, 1979). As shown in Table 1, ICC estimates were high, indicating acceptable agreement on both perceived class goals and incentives, at about the level typically found on student course evaluations (e.g., Feldman, 1977). Agreement is sufficient for the class aggregate values (i.e., class means) to be considered reliable estimates of class incentives and goals. In general, there appears to be more agreement among students on class incentive structures than on goal orientations. The highest level of agreement, as well as the most variance between classes, was in whether grades are based on group performance. Students' rated emphasis on each characteristic were averaged within classes to provide a set of seven scores for each of the 54 classes.

Relative Emphasis on Class Goals and Incentives

A repeated-measures ANOVA indicated that students perceived different levels of emphasis on these features of the class ($F(6, 318) = 210.00$, $p < .0001$, $MSE = .55$. From the means in Table 1, it appears that students perceived relatively high emphasis on learning the course material, engaging in collaborative activities to learn the material, and basing performance judgments on individual accomplishment, and grades. Clearly, students perceived little emphasis on competition, comparative judgments, and basing grades on group performance.

Relations Between Goal-Orientations and Incentives

Relationships between goal orientations and incentives shown in Table 1 are generally consistent with expectation. Although perceived emphasis on learning the course material was not significantly correlated with and of the incentive dimensions, performance goals were significantly correlated. Specifically, relative ability (being smarter than other students) was significantly correlated positively with competitive grading and negatively with individualistic incentive structures. In addition, emphasis on grades related positively to competitive incentives and negatively to the degree that students cooperate to learn the course material. Classes with

more emphasis on group grading were more likely to be perceived as emphasizing grades (r = .36, $p < .01$).

Class Incentives, Goals, and Students' Use of Learning Strategies

Correlations between class aggregate student ratings of incentives, goals, cooperative activity, and learning strategy use are shown in Table 2. Consistent with expectation, the more that students indicated that grades in their classes were based on group performance the more they reported using critical thinking. In addition, perceived emphasis on grades was inversely related to students' use of cognitive strategies of elaboration and critical thinking. Most notable, however, is that more emphasis on student cooperation to learn the material was related to greater student use of learning strategies of elaboration (r = .47, $p < .001$), metacognition (r = .35, $p < .01$), and critical thinking (r = .56, $p < .001$). Critical thinking was also more evident in classes in which grades were based on group performance (r = .27, $p < .05$). There was no evidence, however, that emphasis on competition or individual accomplishment, or learning and comparative ability emphasis was related to a classes' use of learning strategies.

Discussion

With the exception of a moderately high emphasis on grades, students in this study perceived their classes' goals and incentives as having characteristics that have been found to facilitate engagement in learning: an emphasis on learning the material, outcomes based on individual performance criteria, opportunities for learning in groups, and less emphasis on competition and ability comparisons (Ames, 1992; Collins-Eaglin & Karabenick, 1994; Slavin et al., 1985).

Not all classes conformed to this facilitative profile, however, and the variability among classes was related to the level of student engagement in learning. Students in classes that emphasized working together to learn the material and that de-emphasized grades were more likely to use higher-order learning strategies of elaboration and critical thinking. From the learning strategy perspective, critical thinking and elaboration were higher in classes that emphasized cooperative activity, and de-emphasized grades. There was no indication in the present study, however, that perceived emphasis on competitive and individualistic incentives, or learning and ability goals was associated with students' use of cognitive or metacognitive strategies.

Whereas the correlational design used here precludes definitive causal inference, the data support the hypothesis that a learning atmosphere that encourages students to work together and that downplays grades creates higher levels of student engagement in learning (Ames, 1992). If so, then instructors are encouraged to structure their classes in this fashion—a prescription that is quite in keeping with what many educators have been saying for years and that is consistent with the "teaching to learning" paradigm shift (e.g., Barr & Tagg, 1995).

We need to consider yet another set of conditions that could have produced the observed relationships. This view holds that the degree of emphasis on cooperation and grades and the facilitation of higher-order learning strategies are all components of teachers' general approach to instruction. Whereas some instructors de-emphasize grades and encourage group learning (although not necessarily group grading) while simultaneously providing a learning setting in which students are more likely to relate the material to their lives, and engage in metacognitive self-regulation and critical thinking, other instructors focus on grades, discourage students from working together, and provide no strategic guidance. According to this scenario, class goals and incentives would be related to the use of learning strategies spuriously rather than causally.

Some support for this view comes from the student evaluation of teaching effectiveness (SETE) literature, (e.g., Marsh, 1984), which indicates that several components of teacher effectiveness are positively related. In other words, teachers are more or less effective in many areas of instruction,

which could include their encouragement of learning strategy use. However, SETE instruments have typically not asked students to rate their instructors' encouragement of strategy use, and we are uncertain whether such behavior would be related. A test of whether a causal or spurious relationship is more likely would entail having students describe their instructors' emphasis on, or guidance in, the use of learning strategies as well as their emphasis on goals and incentives, in addition to reporting on their own use of strategies as was the case in the present study.

Other possible sources of spuriousness in the present study were examined, but none were found systematically related to both learning strategy use and perceived emphasis on goals and incentives. For example, ordered variables such as class size and class level were statistically controlled by first-order partialing, which had no effect on the statistical significance of the zero-order values, nor did subject area relate systematically to goals, incentives and strategy use.

It is also not clear why there were no systematic relationships between the use of learning strategies and the other class features. Between-class variance and within-class student agreement are not implicated because they were not systematically related to the level of covariance between classroom features and learning strategy use. For example, perceptions of cooperative activity were just as reliably assessed and variable as emphasis on competition, yet the latter were not related to degree of strategy use.

In summary, the present study adds to evidence that goals and incentives are important classroom characteristics, as well as discerning which goals and incentives are, and which are not, related to student engagement in learning as indicated by students' use of higher-order learning strategies. We have also shown that students, in the aggregate, can reliably assess their classes' emphasis on important goals and incentives. As noted by Blumenfeld (1992), more studies at the class level of analysis, such as the one reported here, are suggested to complement the focus on individual differences.

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Table 1. ***Correlations Between Perceived Class Goals and Incentives (n = 54 classes)***

Class characteristic	Compet.	Individ.	Group	Coop.	Learning	Compar.	*M*	*SD*	*ICC*[#]
Incentive structure									
Competitive							1.1[a]	.71	.81***
Individualistic	-.39**						4.2[d]	.49	.80***
Group performance	.32*	-.79***					1.6[b]	1.24	.94***
Cooperative activity	-.25	-.22	.50***				3.3[c]	.77	.83***
Goal orientation									
Learning	-.05	.17	-.19	.20			4.2[d]	.62	.74***
Comparative	.90***	-.46***	.36**	-.24	-.45***		1.0[a]	.55	.73***
Grades	.30*	.01	.03	-.32*	-.16	.26	3.8[d]	.61	.77***

*$p < .05$ **$p < .01$ ***$p < .001$ [#]Intraclass Correlation Coefficient

Note: Ratings used a 6-point (0 to 5 scale). Means with noncommon superscripts are significantly different by Tukey test at $\alpha = .05$.

Table 2. ***Relation of Perceived Class Goals and Incentives to Learning Strategy Use (n = 54 classes)***

	Learning Strategy			
Class characteristic	Elaboration	Organization	Metacognition	Crit. Thinking
Incentive structure				
Competitive	.00	-.02	-.08	-.22
Individualistic	.04	.07	.01	-.03
Group performance	.22	.05	.11	.27*
Cooperative activity	.47***	.25	.35**	.56***
Goal orientation				
Learning	-.02	-.03	.05	-.20
Comparative	-.11	-.04	-.11	-.20
Grades	-.32*	-.07	-.11	-.50***
M	3.85	3.12	3.77	3.46
SD	.46	.52	.30	.52

*$p < .05$ **$p < .01$ ***$p < .001$